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WHAT IS CLAIMED IS:

1.   A method for adjusting the representation of a device's color gamut in color appearance space, comprising the steps of:

performing forward mapping of sample colors from a device-dependent space to a device-independent color appearance space to obtain forward-mapped device-independent values;

obtaining mismatch values for perceived device-neutrals, each mismatch value being a difference between a forward mapped value for the device-neutral and a neutral axis of the color appearance space; and

adjusting each forward-mapped device-independent value by utilizing the obtained mismatch value for each corresponding lightness level of device-neutrals in order to obtain an adjusted forward mapping.

2.   A method according to Claim 1, wherein the forward mapping is a forward look-up table obtained by converting measurements of color samples from the device to device-independent color appearance space.

3.   A method according to Claim 1, wherein mismatch values are obtained by extracting device-independent color appearance space values for device-neutrals and generating a one-dimensional look-up table that maps a color-neutral axis for a range of lightness values.

4.   A method according to Claim 1, wherein the device-independent values are Jab values.

5.   A method according to Claim 1, wherein the adjustment of each device-independent value comprises obtaining "a" and "b" coordinates for a device-neutral having a lightness value equivalent to the device-independent value, and subtracting the "a" coordinate of the device-neutral from a corresponding "a" coordinate of the device-independent value and the "b" coordinate of the device-neutral from a corresponding "b" coordinate of the device-independent value.

6.   A method according to Claim 1, wherein the adjustment of each device-independent value comprises obtaining "a" and "b" coordinates for a device-neutral having a lightness value equivalent to the device-independent value, and adjusting the "a" and "b" values by means of a linear or non-linear function of the device-neutral "a" and "b" values.

7.   A method according to Claim 1 further comprising the step of inverting the resulting adjusted forward mapping from device-independent color appearance space to device-dependent space.

8.   A method according to Claim 7 wherein the adjusted forward-mapping and the inverted adjusted forward-mapping are inserted into a color management module.

9.   A method according to Claim 8, wherein a computing device utilizes the color management module to perform color data management to output an image.

10.   A method according to Claim 1, wherein the adjusting of the forward-mapped device-

independent values is a full adjustment of each value.

11. A method according to Claim 1, wherein the adjusting of the forward-mapped device-independent values is a partial adjustment performed in either a linear or non-linear manner.

12. A method according to Claim 11, wherein the partial adjustment is based at least in part on chroma.

13. A method according to Claim 12, wherein the partial adjustment is performed in inverse proportionality.

14. A method according to Claim 11, wherein the partial adjustment is based at least in part on lightness.

15. A method according to Claim 14, wherein the partial adjustment is performed in inverse proportionality.

16. A method according to Claim 11, wherein the partial adjustment is based at least in part on both chroma and lightness.

17. A method according to Claim 16, wherein the partial adjustment based on chroma is performed in inverse proportionality, and the partial adjustment based on lightness is performed in inverse proportionality.

18. A method according to Claim 1, wherein the mismatch values are obtained for two device-

neutrals with any remaining values being obtained by interpolation.

19. Computer-executable process steps for adjusting the representation of a device's color gamut in color appearance space, comprising the steps of:

performing forward mapping of sample colors from a device-dependent space to a device-independent color appearance space to obtain forward-mapped device-independent values;

obtaining mismatch values for perceived device-neutrals, each mismatch value being a difference between a forward mapped value for the device-neutral and a neutral axis of the color appearance space; and

adjusting each forward-mapped device-independent value by utilizing the obtained mismatch value for each corresponding lightness level of device-neutrals in order to obtain an adjusted forward mapping.

20. Computer-executable process steps according to Claim 19, wherein the forward mapping is a forward look-up table obtained by converting measurements of color samples from the device to device-independent color appearance space.

21. Computer-executable process steps according to Claim 19, wherein mismatch values are obtained by extracting device-independent color appearance space values for device-neutrals and generating a one-dimensional look-up table that maps a color-neutral axis for a range of lightness values.

22. Computer-executable process steps according to Claim 19, wherein the device-independent values are Jab values.

23. Computer-executable process steps according to Claim 19, wherein the adjustment of each device-independent value comprises obtaining "a" and "b" coordinates for a device-neutral having a lightness value equivalent to the device-independent value, and subtracting the "a" coordinate of the device-neutral from a corresponding "a" coordinate of the device-independent value and the "b" coordinate of the device-neutral from a corresponding "b" coordinate of the device-independent value.

24. Computer-executable process steps according to Claim 19, wherein the adjustment of each device-independent value comprises obtaining "a" and "b" coordinates for a device-neutral having a lightness value equivalent to the device-independent value, and adjusting the "a" and "b" values by means of a linear or non-linear function of the device-neutral "a" and "b" values.

25. Computer-executable process steps according to Claim 19 further comprising the step of inverting the resulting adjusted forward mapping from device-independent color appearance space to device-dependent space.

26. Computer-executable process steps according to Claim 25 wherein the adjusted forward-mapping and the inverted adjusted forward-mapping are inserted into a color management module.

27. Computer-executable process steps according to Claim 26, wherein a computing device utilizes the color management module to perform color data management to output an image.

28. Computer-executable process steps according to Claim 19, wherein the adjusting of the forward-mapped device-independent values is a full adjustment of each value.

29. Computer-executable process steps according to Claim 19, wherein the adjusting of the forward-mapped device-independent values is a partial adjustment performed in either a linear or non-linear manner.

30. Computer-executable process steps according to Claim 29, wherein the partial adjustment is based at least in part on chroma.

31. Computer-executable process steps according to Claim 30, wherein the partial adjustment is performed in inverse proportionality.

32. Computer-executable process steps according to Claim 29, wherein the partial adjustment is based at least in part on lightness.

33. Computer-executable process steps according to Claim 32, wherein the partial adjustment is performed in inverse proportionality.

34. Computer-executable process steps according to Claim 29, wherein the partial adjustment is based at least in part on both chroma and lightness.

35. Computer-executable process steps according to Claim 34, wherein the partial adjustment based on chroma is performed in inverse proportionality, and the partial adjustment based on lightness is performed in inverse proportionality.

36. Computer-executable process steps according to Claim 19, wherein the mismatch values are obtained for two device-neutrals with any remaining values being obtained by interpolation.

37. An apparatus that processes color image data, comprising:

a program memory for storing executable process steps for adjusting the representation of a device's color gamut in color appearance space, wherein the executable process steps include: (a) performing forward mapping of sample colors from a device-dependent space to a device-independent color appearance space to obtain forward-mapped device-independent values; (b) obtaining mismatch values for perceived device-neutrals, each mismatch value being a difference between a forward mapped value for the device-neutral and a neutral axis of the color appearance space; and (c) adjusting each forward-mapped device-independent value by utilizing the obtained mismatch value for each corresponding lightness level of device-neutrals in order to obtain an adjusted forward mapping; and

a processor for executing the process steps stored in the program memory.

38. An apparatus according to Claim 37, wherein the forward mapping is a forward look-up table obtained by converting measurements of color samples from the device to device-independent color appearance space.

39. An apparatus according to Claim 37, wherein mismatch values are obtained by extracting device-independent color appearance space values for device-neutrals and generating a one-dimensional look-up table that maps a color-neutral axis for a range of lightness values.

40. An apparatus according to Claim 37, wherein the device-independent values are Jab values.

41. An apparatus according to Claim 37, wherein the adjustment of each device-independent value comprises obtaining "a" and "b" coordinates for a device-neutral having a lightness value equivalent to the device-independent value, and subtracting the "a" coordinate of the device-neutral from a corresponding "a" coordinate of the device-independent value and the "b" coordinate of the device-neutral from a corresponding "b" coordinate of the device-independent value.

42. An apparatus according to Claim 37, wherein the adjustment of each device-independent value comprises obtaining "a" and "b" coordinates for a device-neutral having a lightness value equivalent to the device-independent value, and adjusting the "a" and "b" values by means of a linear or non-linear function of the device-neutral "a" and "b" values.

43. An apparatus according to Claim 37 further comprising the step of inverting the resulting adjusted forward mapping from device-independent color appearance space to device-dependent space.

44.   An apparatus according to Claim 43
wherein the adjusted forward-mapping and the
inverted adjusted forward-mapping are inserted into
a color management module.

45.   An apparatus according to Claim 44,
wherein a computing device utilizes the color
management module to perform color data management
to output an image.

46.   An apparatus according to Claim 37,
wherein the adjusting of the forward-mapped device-
independent values is a full adjustment of each
value.

47.   An apparatus according to Claim 37,
wherein the adjusting of the forward-mapped device-
independent values is a partial adjustment performed
in either a linear or non-linear manner.

48.   An apparatus according to Claim 47,
wherein the partial adjustment is based at least in
part on chroma.

49.   An apparatus according to Claim 48,
wherein the partial adjustment is performed in
inverse proportionality.

50.   An apparatus according to Claim 47,
wherein the partial adjustment is based at least in
part on lightness.

51.   An apparatus according to Claim 50,
wherein the partial adjustment is performed in
inverse proportionality.

52. An apparatus according to Claim 47, wherein the partial adjustment is based at least in part on both chroma and lightness.

53. An apparatus according to Claim 52, wherein the partial adjustment based on chroma is performed in inverse proportionality, and the partial adjustment based on lightness is performed in inverse proportionality.

54. An apparatus according to Claim 37, wherein the mismatch values are obtained for two device-neutrals with any remaining values being obtained by interpolation.

55. A computer-readable medium on which is stored code for performing computer-executable process steps adjusting the representation of a device's color gamut in color appearance space, wherein the computer-executable process steps include: (a) performing forward mapping of sample colors from a device-dependent space to a device-independent color appearance space to obtain forward-mapped device-independent values; (b) obtaining mismatch values for perceived device-neutrals, each mismatch value being a difference between a forward mapped value for the device-neutral and a neutral axis of the color appearance space; and (c) adjusting each forward-mapped device-independent value by utilizing the obtained mismatch value for each corresponding lightness level of device-neutrals in order to obtain an adjusted forward mapping.

56. A computer-readable medium according to Claim 55, wherein the forward mapping is a forward look-up table obtained by converting

measurements of color samples from the device to
device-independent color appearance space.

57.   A computer-readable medium according
to Claim 55, wherein mismatch values are obtained by
extracting device-independent color appearance space
values for device-neutrals and generating a one-
dimensional look-up table that maps a color-neutral
axis for a range of lightness values.

58.   A computer-readable medium according
to Claim 55, wherein the device-independent values
are Jab values.

59.   A computer-readable medium according
to Claim 55, wherein the adjustment of each device-
independent value comprises obtaining "a" and "b"
coordinates for a device-neutral having a lightness
value equivalent to the device-independent value,
and subtracting the "a" coordinate of the device-
neutral from a corresponding "a" coordinate of the
device-independent value and the "b" coordinate of
the device-neutral from a corresponding "b"
coordinate of the device-independent value.

60.   A computer-readable medium according
to Claim 55, wherein the adjustment of each device-
independent value comprises obtaining "a" and "b"
coordinates for a device-neutral having a lightness
value equivalent to the device-independent value,
and adjusting the "a" and "b" values by means of a
linear or non-linear function of the device-neutral
"a" and "b" values.

61.   A computer-readable medium according
to Claim 55 further comprising the step of inverting
the resulting adjusted forward mapping from device-

independent color appearance space to device-dependent space.

62. A computer-readable medium according to Claim 61 wherein the adjusted forward-mapping and the inverted adjusted forward-mapping are inserted into a color management module.

63. A computer-readable medium according to Claim 62, wherein a computing device utilizes the color management module to perform color data management to output an image.

64. A computer-readable medium according to Claim 55, wherein the adjusting of the forward-mapped device-independent values is a full adjustment of each value.

65. A computer-readable medium according to Claim 55, wherein the adjusting of the forward-mapped device-independent values is a partial adjustment performed in either a linear or non-linear manner.

66. A computer-readable medium according to Claim 65, wherein the partial adjustment is based at least in part on chroma.

67. A computer-readable medium according to Claim 66, wherein the partial adjustment is performed in inverse proportionality.

68. A computer-readable medium according to Claim 65, wherein the partial adjustment is based at least in part on lightness.

69.   A computer-readable medium according to Claim 68, wherein the partial adjustment is performed in inverse proportionality.

70.   A computer-readable medium according to Claim 65, wherein the partial adjustment is based at least in part on both chroma and lightness.

71.   A computer-readable medium according to Claim 70, wherein the partial adjustment based on chroma is performed in inverse proportionality, and the partial adjustment based on lightness is performed in inverse proportionality.

72.   A computer-readable medium according to Claim 55, wherein the mismatch values are obtained for two device-neutrals with any remaining values being obtained by interpolation.